3661

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#19 Response 5/4/2 Blmr

In re application of

Takayuki KIFUKU

Appln. No.: 09/286,418

Confirmation No.: 4951 Group Art Unit: 3661

Filed: April 06, 1999 Examiner: Brian J. Broadhead

For: ELECTRIC POWER STEERING SYSTEM

RESPONSE UNDER 37 C.F.R. § 1.111

Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the Office Action dated January 29, 2002, please consider the following remarks:

Claims 1, 2, and 4-20 are all the claims pending in the application.

Claims 1, 2, and 4-20 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kifuku et al. (USP 5,740,040). Applicant respectfully traverses the rejections as set forth below.

The Examiner asserts that Kifuku et al. (col. 2, lines 12-20) disclose a means of computing an estimated value of static friction of the steering system based on the steering force of a driver. Applicant disagrees for the following reasons. The excerpt of the reference cited by the Examiner actually refers to the steering force assist current calculation means 9 of FIG. 2. This element of FIG. 2 corresponds to the steering force assist current computing means 7, not the static friction computing means 9, of Applicant's exemplary embodiment shown in FIG. 3.

The foregoing steering force assist current computing means 7 of the present invention and Kifuku et al's steering assist current calculation means 9 determine a value for steering force assist current target Is based on inputs of car speed Vs and steering torque Vt.

On the other hand, the static friction computation means 9 of claim 1 of the present invention obtains an estimated value of the static friction of the steering system upon estimating the value of the same, based on a driver's steering force (steering torque, Vt). Thus, the static friction computation means 9 of claim 1 of the present invention is quite different from the steering force assist current computing means 7 of the present invention, as well as Kifuku et al's steering assist current calculation means 9.

Moreover, FIG. 31, as well as the description at column 20, lines 34-39, of Kifuku et al., which represents static friction compensation in the reference, clearly shows a static-friction compensating current calculation means 20 for compensating the static friction based on the estimated value of the static friction that uses vehicle speed Vs and a differentiated value of motor angular velocity ω as inputs to produce a static-friction compensating current target If.

In other words, Kifuku et al. teach a technology of computation of steering assist current target value Is based on a differentiated value of motor angular velocity and vehicle speed Vs, and does not teach or suggest at all a means for obtaining static friction of the steering system based on a driver's steering force (steering torque Vt) as disclosed by the present invention.

Furthermore, the static friction compensating current calculation means 20 of Kifuku et al. uses differentiated value of motor angular velocity ω. By contrast, the static friction compensation current computing means 10 of the present invention estimates the value of static friction of the steering system independently of the motor angular velocity ω.

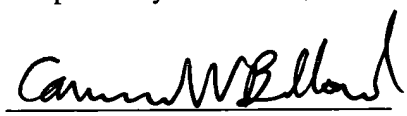
Therefore, claim 1 is believed to be allowable over the prior art for at least these reasons.

Also, claims 2 and 4-20 are believed to be in form for allowance, at least because of their dependence from claim 1, which has been shown to be allowable.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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